

LAC FOR POVERTY MITIGATION OF THE SMALL AND MARGINAL FARMERS IN RURAL BANGLADESH

Lac is the resinous substances secreted as a protective covering by the tiny lac insect, *Kerria lacca* Kerr. Lac insects settle closely on the twigs of certain host trees, suck the plant sap and grow. Since the insects are closely spaced on the twigs, the resin forms continuous encrustations over the twigs of the host trees. These insects can develop and reproduce only on certain plants, which are called host plants like ber (*Zizyphus jujuba*), babla (*Acacia arabica*), sirish (*Albizzia lebbek*), polash (*Butea frondosa*), khair (*Acacia catechu*) and kusum (*Schleichera oleosa*). These are the major lac host plants in Bangladesh. In this country, lac crop goes by the time of harvest i.e, kartiki and baishakhi. Lac is widely used in : paint and varnish, ornaments, electrical insulation, cosmetics, pharmaceutical industries, bulb capping cement, chocolate and fruit coating, automobile industries, floor, shoe, automobile polish, textile industries etc. At present, Bangladesh produces 1,000 metric tones of lac as against the requirement of 20,000-25,000 metric tones per annum. The rest of the demand are being met through import.



Lac insect, *Kerria lacca* Kerr.



Development of lac on ber



Stick lac



Seed lac



Shellac



Button lac or Tikia

Lac can be considered as one of the most promising cash crops in Bangladesh. Lac cultivation is very simple; no extra land is required, need very small investment and requires only part-time attention. Since lac insects are cultured on host trees which are grown primarily in wasteland areas, on different fallow lands, homestead areas, besides ponds, ails, ditches, roads, railways etc. Promotion and expansion of lac cultivation in promising areas of the country could bring reasonable income and employment for the small and marginal farmers.

EARLY HISTORY

A brood lac multiplication farm was established at Chapai Nawabgonj in 1961 only to supply lac seeds among the farmers. After liberation in 1971, the seed supply activity was stopped and Bangladesh Agricultural Research Institute (BARI) started research on lac with very little manpower. On the other hand, in India, this research part of lac is being taken care by over 100 scientists. This demands that, for ensuring improvement of lac research in Bangladesh, adequate skilled manpower, infra-structure and laboratory facilities should urgently be developed.

LAC CULTIVATION AND EXPANSION CONCERNS

The overall weather and soil condition of most of the areas of Bangladesh is suitable for lac cultivation. For long time, lac cultivation was confined in the north-west part of the country especially in Chapai Nawabgonj and Rajshahi. But in recent years, lac farmers of those areas are facing some acute problems. The most important one is, repeated application of pesticide in mango orchards which is adversely affecting the lac insect and its habitat. Another problem is trans-boundary entry of lac. Therefore, it is urgent and necessary to expand lac cultivation in other promising areas of the country where a huge number of lac host plants are scatteredly available. Against the backdrop, a sub-project entitled **“Research and technology generation in lac as a means towards elevation of poverty and income of the small and marginal farmers”** financed by PIU-BARC was undertaken and implemented by the Entomology Division of BARI for a period of three years in five different locations viz., Nachole of Chapai Nawabgonj, Naboganga of Rajshahi, Pirgonj of Rangpur, Nilphamari sadar and Joydebpur of Gazipur district.

APPROACH AND METHODOLOGY

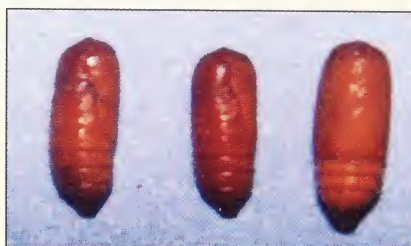
- Selection of the farmers having at least two ber or other lac host plants for lac village establishment as a way towards improvement of livelihood;
- Establishment of lac host orchards in different project locations for the supply of seeds during lac seed inoculation in those areas;
- Seed exchange program from one group of lac farmers to another after retention of the 50% of his produce;
- Monitoring and data collection on the nymphal (immature lac insect) establishment, growth and development of lac insect in the field as well as pest status determination of *Pseudohypatopa pulverea* and *Eublemma amabilis*, enemies of lac insect;
- Development of management option against *Pseudohypatopa pulverea* and *Eublemma amabilis* in storage and field;
- Training on improved lac cultivation techniques and
- Socio-economic survey of the lac farmers.

ACHIEVEMENTS

- Ber and sirish are the best hosts of lac insect for getting higher yield of lac.
- Rajshahi, Pirganj and Joydebpur are the promising areas of lac cultivation.
- *E. amabilis* is more abundant in the field whereas, *P. pulverea* in storage condition.
- Predator attack is much higher in kartiki crop compared to baishakhi crop.
- Spraying of neem seed kernel extract @ 10g crush/litre of water at 10 days interval starting from first larval appearance in the field was found to be the most effective treatment.



Damage by *E. amabilis*



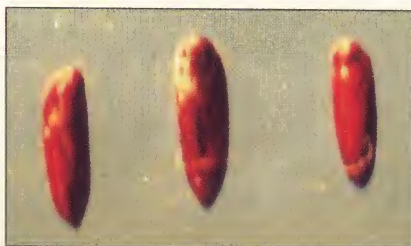
Pupa of *E. amabilis*



Adult of *E. amabilis*



Damage by *P. pulverea*



Pupa of *P. pulverea*



Adult of *P. pulverea*

PROMOTIONAL ACTIVITIES

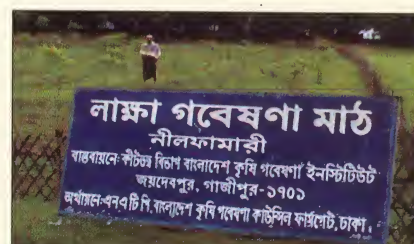
As a part of the sub-project activity, by now, 10 lac villages have been established and more than six hundred different host plants have been brought under lac cultivation in five locations of the project. Besides, four lac mother orchards at Joydebpur, Rajshahi, Pirgonj and Nilphamari sadar have been established where a total of 10,000 host plants including ber and khair are available for the supply of seeds during lac seed inoculation in those areas. In addition, lac farmers are being trained on improved technology of lac production and processing under this project.



Lac orchard at Joydebpur



Lac orchard at Pirgonj



Lac orchard at Nilphamari



Lac village at Rajshahi



Farmers training at Nilphamari and Pirgonj



Project activities in print media

SUCCESS STORY



Md. Israil Hossain, one of the participating farmers of sub-project in Nachole being motivated by the activities, cultivated lac in his ber plants. Mr. Hossain followed the researchers advices and earned a net profit of BDT 1,00,000.00 from the two seasonal outputs.

LESSON LEARNED

- To avoid seed damage care should be taken during transportation of seeds from one place to another.
- Displaced lac sticks should be placed properly on host branches for maximum migration of insects from dead to new shoots up to 10 days of inoculation.
- Lac should be processed immediate after harvest to avoid more damage by the predator and deterioration of its quality.
- For getting higher yield of lac, care should be taken in all steps of production.

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